

Appln. No. 10/734,758

Attorney Docket No. 11745-25
Client Reference No. EXA-143

II. Remarks

Claims 11-22 and 24-35 are pending in the present application. By this Paper claims 11, 21, 24, 33, and 35 have been amended. With the remarks and amendments provided herewith, the Applicants respectfully request reconsideration and a withdrawal of all rejections.

Claim 11 has been amended for clarification to recite that the ink is printed by membrane image transfer on the substrate and "adhered thereto with at least about 99% retention to the substrate." Support for the amendments above may be found on in the specification of the present application, paragraph [0025], page 9. Moreover, claims 21 and 33 have been amended for clarity to no longer recite trade names, e.g., Hypermer® and Solsperse®. Additionally, claim 24 has been amended for clarification to recite that the method comprises applying a printed decoration of the ink through a screen to a membrane to defining the membrane image on the membrane and "adhering the membrane image to the substrate." Support for the amendments above may be found on in the specification of the present application, paragraph [0023] and Figures 3a-3d.

Furthermore, claim 35 has been amended for clarification to recite "an ink adhered to the substrate by screen printing the ink on a membrane and transferred to the substrate" and "having at least about 99% retention to the substrate." Support for the amendments above may be found on in the specification of the present application, paragraph [0025], page 9. No new matter has been added in any of the present claims.

It is to be noted that significant differences between screen-printing and pad-printing exist with respect to the composition of the ink utilized. Typically, the inks used in these two application methods are very different in their solvent make-up. In order not to dry in the screen, the ink formulations used in screen-printing contain solvents whose evaporation rates are lower than those used in pad-printing inks. In pad-printing ink formulations, solvent evaporation is utilized to modify rheological properties and surface tension in order to provide a "tacky" film on the pad during transfer. Thus many commercial screen-printing and pad-printing inks will not

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optimally function in a printing process that combines both conventional printing techniques into one method, such as MIT printing. Therefore, there is a need in the industry to formulate inks that not only may be used in conventional screen-printing or pad-printing application techniques, but also will function in processes that incorporate both conventional techniques into one process.

Examples of the present invention provide inks and a method of printing the inks by a membrane image transfer (MIT) printing process. In one example, the inks exhibit the rheological properties to achieve optimum performance in an MIT printing process. Generally, an MIT printing process is a method of printing that combines both screen printing and pad printing (tampography) into one method for the decoration of articles with complex shapes. See Specification of present application, paragraphs [0021] through [0023] and Figures 3a-3d.

Rejections Under 35 U.S.C. § 103

Responsive to the rejections of claims 11-13, 15, and 35 under 35 U.S.C. §103(a) based on the combination of *Thakrar et al.* (U.S. Patent No. 6,284,161) and *Li et al.* (U.S. Patent No. 4,531,122), each of claims 11 and 35 have been amended as mentioned above to distinguish therefrom. For example, claim 11 has been amended to recite "an ink printed by membrane image transfer on the substrate and adhered thereto with at least about 99% retention to the substrate. The cited references, alone or in combination, do not teach or suggest such limitations. Furthermore, there is no motivation to combine the references.

Moreover, the rationale of combining these references for rejecting claims 11-13, 15, and 35 is an improper piecemeal interpretation of the cited references. Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art references as a whole. M.P.E.P. § 2141.02 (emphasis added). "In determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." M.P.E.P. § 2141.02; *Stratoflex, Incl. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983); See also, *Schenck v. Nortron Corp.*, 713 F.2d 782 (Fed. Cir. 1983).

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For example, each of claims 11 and 35 recites a plastic substrate for a membrane image transfer (MIT) and an ink printed by MIT on the substrate and adhered thereto for replacement of metallic or glass articles. Contrarily, *Thakrar et al.* is absent any teachings of a plastic substrate and an ink printed/adhered by MIT on the substrate. Rather, *Thakrar et al.* merely teaches a casting mold temporarily having an ink pattern thereon for a process of making contact lenses. See *Thakrar et al.*, col. 3, lines 32-36 and col. 4, lines 26-39.

The process taught in *Thakrar et al.* involves a mechanical altering and softening of the surface of resin/colorant capsules. Moreover, the solvent of the ink pattern in *Thakrar et al.* is then evaporated, leaving on the mold surface a deposition in which insoluble colorant particles are encapsulated in the resin. *Thakrar et al.*, col. 5, lines 7-26. Thereafter, a monomer is poured into the mold to form the lens. At that point, a mechanical altering and softening of the surface of the individual resin/colorant capsules takes place. *Id.* That is, the monomer penetrates the interstices between the capsules and thereabout, so that the capsules become impregnated in the monomer matrix with the pattern remaining intact. *Id.* Additionally, the pattern is not printed on the mold as in the claimed invention, but rather a thin layer of monomer interposes itself between the resin/colorant capsules and the casting mold surface.

As an extension of this phenomenon, a thin layer of monomer interposes itself between the resin/colorant capsules and the casting mold surface, so that when the finished lens is subsequently removed from the mold, the surface is a substantially intact layer of lens forming material, with the printed pattern of resin/colorant capsules located beneath said surface, but closely adjacent thereto.

Id.

Furthermore, in the case interview with Examiner Ferguson on December 14, 2005, the Examiner stated that she broadly defined the meaning of "an ink printed on a substrate" to include both a final substrate as well as any transient substrate used in a printing process, e.g., a casting mold. However, if the ink of the present invention were dried or cured during a printing process on a transient substrate, the printing process would not function as intended. The casting mold in *Thakrar et al.* and the anterior and posterior molds (6, 7) in *Li et al.* are each a transient substrate.

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during the printing process. In a membrane image transfer process as recited in claims 11 and 35, the comparable transient substrate would be the soft deformable membrane (218) used to transfer the ink to the surface of a final plastic article (220) as described in the specification of the present application. Page 7, paragraph [0023]. The inventors being their own lexicographer do not intend to include transient articles upon which the ink is printed. For example, a membrane image transfer article refers to the result (220) of the MIT process and not a transient component therein as described in the present application. The inventors' intention is further inferred in the specification (page 27, paragraph [0062]) by defining the printing capability of an ink as being partially determined via the percentage of ink transfer, the thickness of the print, and the adhesion of the print. In this example, the ink is transferred from the transient substrate to the final article (specification, page 27, paragraph [0062]). The printing process would not function as intended if the ink of the present application were dried or cured during a printing process on a transient substrate. Thus, the rationale of combining *Thakrar et al.* and *Li et al.* for the rejections of claims 11-13, 15, and 35 under 35 U.S.C. § 103(a) is improper.

Contrary to the Examiner's assertions, it would not have been obvious to provide and test the ranges as claimed in claims 11 and 35. As provided in the background, there are significant differences between screen printing and pad printing with respect to composition of ink utilized. See Specification, paragraph [0005], page 2. Typically, inks used in such application methods are different in their solvent makeup. In order not to dry in the screen, the ink formulations used in screen printing contains solvents having evaporation rates lower than those used in pad printing inks. *Id.* Most commercial screen printing and pad printing inks will not feasibly function in a printing process that combines both conventional printing techniques into one, such as membrane image transfer printing. *Id.* In pad printing ink formulations, solvent evaporation is utilized to modify rheological properties and surface tension in order to provide a "tacky" film on the pad during transfer. *Id.*

Thus, given the differences in properties of the inks and unexpected results, the inks recited in claims 11 and 35 for MIT printing is non-obvious. See Specification paragraph [0005], pages 2-3. Furthermore, as mentioned in the specification of the present application, the ink systems that are compatible with a

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MIT printing process were surprisingly found to exhibit a specific range of thixotropic, compliance, dynamic, and yield stress properties. See Specification, paragraph [0027], page 10. Thus, it would not have been obvious to one of ordinary skill in the art to provide and test the ranges as claimed in claims 11 and 35.

Claims 12-22 generally depend from independent claim 11. Thus, claims 12-22 are allowable for the reasons provided above.

Responsive to the rejections of claims 24-34 under 35 U.S.C. § 103(a) base on the combination of *Thakrar et al.* with *Li et al.* and *De Bastiani et al.*, independent claim 24 has been amended as mentioned above to distinguish therefrom. For example, claim 24 has been amended to recite that the method comprises applying a printed decoration of the ink through a screen to a membrane to defining the membrane image on the membrane and "adhering the membrane image to the substrate." The cited references, alone or in combination, do not teach or suggest all the elements recited in independent claim 24 as amended. Furthermore, there is no motivation to combine the references.

Moreover, the rationale of combining *Thakrar et al.* with *Li et al.* and *De Bastiani et al.* is an improper piecemeal of the cited references. Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art references as a whole. M.P.E.P. § 2141.02. For example, the substrates/articles taught in *Thakrar et al.* and *Li et al.* are each a casting mold temporarily having an ink pattern thereon for a process of making contact lenses and, thus, are each a transient substrate during the printing process. Contrarily, as the Examiner had mentioned in the Office action, the article taught in *De Bastiani et al.* is a non-transient ceramic article, such as a dinnerplate 10, on which a design is screen printed. See *De Bastiani et al.*, column 8, lines 42-46; see also *De Bastiani et al.*, Fig. 1 (showing the dinnerplate 10 having a primary design element 11). The substrates/articles taught in *Thakrar et al.* and *Li et al.* are not and cannot be the same substrates/articles taught by *De Bastiani et al.* Thus, the rationale of combining *Thakrar et al.* with *Li et al.* and *De Bastiani et al.* to reject claims 24-34 under 35 U.S.C. § 103(a) is also improper. For the reasons

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provided above, it is non-obvious to provide and test the ranges as claimed in claim 24.

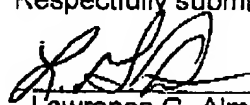
Claims 25-34 generally depend from independent claim 24. Thus, claims 25-34 are allowable for the reasons provided above.

Thus, claims 11-22 and 24-35 are in a condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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